SEMESTER EXAMINATION, DECEMBER, 2025

Course Name: - B.Tech **Semester:- 7th**

Paper Name: - Renewable energy sources development technology **Paper Code:- TOE-071**

Time - 3Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय–3 घण्टे+ 20 मिनटप्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सहलेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark**. **All questions are compulsory**.
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks**.
- SectionC- Answer any **2 out of 3** given questions. Each question carries **10 marks**.

Section – A (खण्ड–अ)

Multiple Choice Questions (बहुविकल्पीय प्रश्न)

1. Answer allthe following questions. **5x3 =15**

i) Which of the following does is non-conventional source of energy?

a) Crude oil b) Natural gas

c) Solar energy d) Coal

ii) Which of the following solar cell use the thin film form of silicon?

a) Monocrystalline solar cell b) Polycrystalline solar cell

c) Amorphous solar cell d) Perovskite solar cell

iii) What is the main source for the formation of wind?

a) Uneven land b) Sun

c) Vegetation d) Seasons

iv) Which of the following does not serve as a source of biomass?

a) Agriculture waste b) Trap grease

c) Willow algae d) Iron nails

v) In closed cycle MHD-steam power plant, which of the following gas is seeded in the MHD duct?

a) Helium b) Xenon

c) Sodium vapour d) Chlorine

Section – B (खण्ड–ब)

Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions. **5x7=35**

i. What are the advantages and limitations of Renewable Energy sources?

ii. Explain the Faraday's law and Lenz law of electromagnetic induction.

iii. What is meant by solar collector? Mention its types.

iv. Give in detail the working principle of Closed cycle Magneto-hydrodynamics (MHD) system.

v. What is Biogas? Explain the working of Biogas production plant.

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vi. Describe the various types of windmills, highlighting their basic characteristics and applications.

vii. Discuss the configuration of a fuel cell. What are the different applications of fuel cell?

Section – C (खण्ड – स)

Descriptive Questions (विवरणात्मकप्रश्न)

3. **Answer any two of the following question.** 2x10=20

i) What is the importance of new and renewable energy sources in the present energy scenario?

ii) Explain in details the different types of geothermal power plant.

iii) Explain the working of Proton exchange membrane fuel cell and Molten carbonate fuel cell.

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